

# **Lack of correlation between X-ray repair cross-complementing group 1 gene polymorphisms and the susceptibility to colorectal cancer in a Malaysian cohort**

## **Abstract**

X-ray repair cross-complementing group 1 (XRCC1) is one of the key components in the base excision repair pathway that repairs erroneous DNA lesions and removes nonbulky base adducts for the maintenance of genome integrity. Studies have revealed that differences in individual DNA repair capacity can impact the interindividual variation in cancer susceptibility, tumour aggressiveness and treatment response. The relationship between XRCC1 and sporadic colorectal cancer (CRC) susceptibility, which is hitherto inconclusive, has been explored in many association studies of different populations. In view of the conflicting findings generated, we aimed to investigate the association between XRCC1 and genetic predisposition to CRC among Malaysians. The present case-control association study was conducted on 130 CRC patients and 212 age-matched healthy controls. The genotyping of XRCC1 Arg194Trp, Arg280His and Arg399Gln single nucleotide polymorphisms was performed with allele-specific real-time PCR approach. This was followed by basic statistical analysis on the single nucleotide polymorphisms and haplotype data obtained. No significant difference in the allele and genotype frequencies was observed between CRC patients and healthy controls ( $P>0.05$ ). There was also no association observed between XRCC1 haplotypes and CRC ( $P>0.05$ ). In conclusion, a positive association between XRCC1 gene polymorphisms and CRC risk was not established in our Malaysian population.